

What is claimed is:

1. A method for generating an optical image, comprising:
forming an optical image with at least one optical element while modifying
wavefront phase such that there are no zeros in subsequent detected
5 spatial frequencies of the optical image over an extended depth of
focus that is larger than a depth of focus occurring without modifying
wavefront phase.
2. The method of claim 1, the step of modifying phase comprising
utilizing an optical mask.
- 10 3. The method of claim 2, further comprising the step of post-processing
the optical image to remove effects induced by the optical mask, to render an
electronic image that is clearer over the extended depth of focus as compared to an
electronic image formed without the optical mask and over the extended depth of
focus.
- 15 4. The method of claim 2, further comprising the step of post-processing
the optical image to reduce effects induced by the optical mask, to render an
electronic image that is clearer over the depth of focus as compared to an electronic
image formed without the optical mask and over the extended depth of focus.
- 20 5. The method of claim 1, further comprising the step of post-processing
the optical image to remove effects induced by the optical mask.
6. The method of claim 1, further comprising the step of post-processing
the optical image to reduce effects induced by the optical mask.
7. A system for forming an image, comprising:
at least one lens and an optical mask that cooperate to form an optical image,
25 the optical mask modifying wavefront phase such that there are no
zeros in subsequent detected spatial frequencies of the optical image
over an extended depth of focus larger than a depth of focus formed
without the optical mask.
8. The system of claim 7, further comprising a detector for detecting the
30 optical image and a post-processor for processing the detected optical image to
reverse blurring effects induced by the optical mask and to form an electronic image

that is clearer over the extended depth of focus as compared to an electronic image formed without the optical mask and over the extended depth of focus.

9. A system for forming an image, comprising:

5 a lens and a phase mask that cooperate to form an optical image characterized by an optical transfer function that has no zeros within detected spatial frequencies of a detector over a larger depth of focus than without the phase mask.

10 10. The system of claim 9, further comprising a detector that detects the optical image and means for post-processing the detected optical image to generate an electronic image that is clear over an extended depth of field.

11. A system having insensitivity to misfocus, comprising:

15 at least one lens and an optical mask that cooperate to form an optical image, the optical mask modifying wavefront phase such that there are no zeros in subsequent detected spatial frequencies of the optical image over a range of misfocus beyond $\pm\pi/10$.